

WHAT IS CLAIMED IS:

1. A muscle energy converter for a patient comprising:

a casing having a fluid port;

a bellows disposed in the casing adapted to contain fluid;

an actuator arm in sliding relationship with the casing, the actuator arm having an attachment zone adapted to attach to a tendon of a muscle of the patient;

a bushing and spring loaded lipseal attached to the casing and engaged with the actuator arm, the actuator arm having an original position and a compressed position;

a roller bearing/cam follower mechanism in contact with the bellows, the bellows disposed between the fluid port and the roller bearing/cam follower mechanism; and

a cam disposed on the actuator arm which moves against the roller bearing/cam follower mechanism when the actuator arm moves from the original position to the compressed position and compresses the bellows and forces fluid out the fluid port when the muscle pulls the actuator arm, the bearing guiding the actuator arm and the bellows restoring the actuator arm to the original position from the compressed position.

2. A muscle energy converter for a patient comprising:

a casing having a fluid port;

a bellows mechanism disposed in the casing adapted to contain fluid; and

an actuator arm mechanism adapted to be attached to a tendon of a muscle of the patient which moves against the bellows mechanism when the muscle pulls the actuator arm mechanism and forces fluid out the fluid port, the actuator arm mechanism engaged with the casing.

3. A converter as described in Claim 2 wherein the actuator arm mechanism has an actuator arm, the actuator arm having an attachment zone adapted to attach to a tendon of a muscle of the patient.

4. A converter as described in Claim 3 wherein the actuator arm mechanism has a bushing mechanism which engages with the actuator arm and the casing, and guides the actuator arm.

5. A converter as described in Claim 4 wherein the bushing mechanism includes a spring loaded lipseal and a bushing, the spring loaded lipseal and the bushing attached to the casing and engaged with the actuator arm, the actuator arm having an original position and a compressed position, the bushing guiding the actuator arm and the bellows restoring the actuator arm to the original position from the compressed position.

6. A converter as described in Claim 5 wherein the bellows mechanism includes a bellows disposed in the casing adapted to contain fluid.

7. A converter as described in Claim 6 wherein the bellows mechanism includes a roller bearing/cam follower mechanism

in contact with the bellows, the bellows disposed between the fluid port and the roller bearing/cam follower mechanism.

8. A converter as described in Claim 7 wherein the actuator arm mechanism includes a cam disposed on the actuator arm which pushes against the roller bearing/cam follower mechanism when the actuator arm moves from the original position to the compressed position and compresses the bellows and forces fluid out the fluid port when the muscle pulls the actuator arm.

9. A method for moving fluid in a patient with a muscle of a patient comprising the steps of:

rotating an actuator arm mechanism against a bellows mechanism in a casing when the muscle pulls the actuator arm mechanism; and

forcing fluid out a fluid port of the casing as the actuator arm mechanism moves against the bellows mechanism.

10. A method as described in Claim 9 wherein the moving step includes the step of moving a cam of the actuator arm mechanism against a roller bearing/cam follower of the bellows mechanism.

11. A method as described in Claim 10 wherein the forcing step includes the step of forcing fluid out the fluid port as the cam moves against the roller bearing/cam follower.

12. A method as described in Claim 9 wherein the moving step includes the step of rotating a rotary cam of the actuator arm mechanism against a roller bearing cam follower.

13. A converter as described in Claim 2 wherein the bellows mechanism includes a roller bearing cam follower.

14. A converter as described in Claim 13 wherein the actuator arm mechanism includes a rotary cam which rotates against the roller bearing cam follower when the muscle pulls the actuator arm mechanism.

15. A converter as described in Claim 14 wherein the actuator arm mechanism includes a plurality of bushings which supports the rotary cam.